







APPENDIX 39.

COMPETENCY CURRICULUM FOR PHYSICAL THERAPY ASSISTANT

APPLICATION OF A SYSTEM APPROACH U.S. NAVY MEDICAL DEPARTMENT EDUCATION AND TRAINING PROGRAMS FINAL REPORT

August 31, 1974



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1	personnel in the Navy's Medical Department, Burea	au of Medicine and Surgery					
Ì	actually do in their occupations; improving the p						
1	tion and training); and building a viable career care personnel. Clearly the first task was to de						
Ī	analyses applicable to all system wide health car	re manpower tasks. A					
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currently designated Navy enlisted occupations, 20 Naval Enlisted Classi-fication Codes (NEC's) were computerized. A set of 16 groupings that cover all designated occupations was developed so as to enhance the effectiveness of professionals and sub-professionals alike.

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FOREWORD

The project, "Application of a System Approach to the Navy Medical Department Education and Training Programs," was initiated in May of 1969 as a realistic, comprehensive response to certain objectives set forth in ADO 43-03X, and to memoranda from both the Secretary of Defense and the Assistant Secretary of Defense, Manpower and Reserve Affairs. The Secretary's concern was stated in his memorandum of 29 June 1965, "Innovation in Defense Training and Education." More specific concerns were stated in the Assistant Secretary's memorandum of 14 June 1968, "Application of a System Approach in the Development and Management of Training Courses." In this he called for "vigorous and imaginative effort," and an approach "characterized by an organized training program with precise goals and defined operational interrelation among instructional system components." He also noted, "Job analyses with task descriptions expressed in behavioristic terms are basic and essential to the development of precise training goals and learning objectives."

The Project

System survey and analysis was conducted relative to all factors affecting education and training programs. Subsequently, a job-analysis sub-system was defined and developed incorporating a series of task inventories ". . . expressed in behavioristic terms . . ." These inventories enabled the gathering of job activity data from enlisted job incumbents, and data relating to task sharing and delegation from officers of the Medical, Nurse and Dental Corps. A data management sub-system was devised to process incumbent data, then carry out needed analyses. The development of initial competency curricula based upon job analysis was implemented to a level of methodology determination. These methods and curriculum materials constituted a third (instructional) sub-system.

Thus, as originally proposed, a system capability has been developed in fulfillment of expressed needs. The system, however, remains untested and unevaluated. ADO 43-03X called for feasibility test and cost-effectiveness determination. The project was designed to so comply. Test and evaluation through the process of implementation has not proved feasible in the Navy Medical Department within the duration of the project. As designed and developed the system does have " . . . precise goals and defined operational interrelation among instructional system components." The latter has been achieved in terms of a recommended career structure affording productive, rewarding manpower utilization which bridges manpower training and health care delivery functions.

Data Management Sub-System

Job analysis, involving the application of comprehensive task inventories to thousands of job incumbents, generates many millions of discrete bits of response data. They can be processed and manipulated only by high speed computer capability using rigorously designed specialty programs. In addition to numerical data base handling, there is the problem of rapidly and accurately manipulating a task statement data base exceeding ten thousand carefully phrased behavioral statements. Through the use of special programs, task inventories are prepared, printouts for special purposes are created following a job analysis application, access and retrieval of both data and tasks are efficiently and accurately carried out, and special data analyses conducted. The collective programs, techniques and procedures comprising this sub-system are referred to as the Navy Occupational Data Analysis Language (NODAL).

Job Analysis Sub-System

Some twenty task inventory booklets (and associated) response booklets) were the instruments used to obtain job incumbent response data for more than fifty occupations. An inventory booklet contains instructions, formatted questions concerning respondent information ("bio-data"), response dimension definitions, and a list of tasks which may vary in number from a few hundred to more than a thousand per occupational field.

By applying NODAL and its associated indexing techniques, it is possible to assemble modified or completely different inventories than those used in this research. Present inventories were applied about three years ago. While they have been rendered in operational format, they should not be reapplied until their task content is updated.

Response booklets were designed in OPSCAN mode for ease of recording and processing responses.

Overall job analysis objectives and a plan of administration were established prior to inventory preparation, including the setting of provisional sample target sizes. Since overall data attrition was forecast to approximate twenty percent, final sample and sub-sample sizes were adjusted accordingly. Stratified random sampling techniques were used. Variables selected (such as rating, NEC, environment) determined stratifications, together with sub-population sizes. About fifteen percent of large sub-populations were sought while a majority of all members of small sub-populations were sought.

Administration procedures were established with great care for every step of the data collecting process, and were coordinated with sampling and data analysis plans. Once set, the procedures were formalized as a protocol and followed rigorously.

Instructional Sub-System

Partial "competency curricula" have been composed as an integral sub-system bridging what is required as performance on the job with what is, accordingly, necessary instruction in the training process. Further, curriculum materials were developed to meet essential requirements for implementing the system so that the system could be tested and evaluated for cost effectiveness. However, due to the fact that test and evaluation was not feasible in the Navy Medical Department within the duration of the project, it was not possible to complete the development of the system through the test and evaluation phase. The inability to complete this phase also interrupted the planned process for fully developing the curricula; therefore, instead of completed curricula ready for use in the system, the curricula were partially developed to establish the necessary sub-system methodology. The competency curricula are based on tasks currently performed by job incumbents in 1971. (The currency of a given curriculum depends upon periodic analysis of incumbents' jobs, and its quality control resides in the evaluation of the performance competency of the program's graduates.)

A competency curriculum provides a planned course of instruction or training program made up of sequenced competency units which are, in turn, comprised of sequenced modules. These modules, emphasizing performance objectives, are the foundation of the curriculum.

A complete module would be comprised of seven parts: a cluster of related tasks; a performance objective; a list of knowledges and skills implied by the objective; a list of instructional strategies for presenting the knowledges and skills to the learner; an inventory of training aids for supporting the instructional strategies; a list of examination modes; and a statement of the required training time. In this project, curriculum materials have been developed to various levels of adequacy, and usually comprise only the first three parts; the latter four need to be prepared by the user.

The performance objective, which is the most crucial part of the module, is the basis for determining curriculum content. It is composed of five essential elements: the stimulus which initiates the behavior; the behavior; the conditions under which the behavior takes place; the criteria for evaluating the behavior; and the consequence or results of the behavior. A sixth element, namely next action, is not essential; however, it is intended to provide linkage for the next behavior.

Knowledges and skills listed in the module are those needed by the learner for meeting the requirements of the performance objective.

Instructional strategies, training aids, examination modes and training time have been specified only for the Basic Hospital Corps Curriculum. The strategies, aids and modes were selected on the basis of those considered to be most supportive in presenting the knowledges and skills so as to provide optimum learning effectiveness and training efficiency. The strategies extend from the classroom lecture as traditionally presented by a teacher to the more sophisticated mediated program for self-instruction. The training aids, like strategies, extend from the traditional references and handout material in the form of a student syllabus to mediated programs for selfinstruction supported by anatomical models. Examination modes extend from the traditional paper and pencil tests to proficiency evaluation of program graduates on the job, commonly known as feedback. Feedback is essential for determining learning effectiveness and for quality control of a training program. The kind of instructional strategies, training aids and examination modes utilized for training are limited only by such factors as staff capability and training budget.

The training time specified in the Basic Hospital Corps Curriculum is estimated, based upon essential knowledge and skills and program sequence.

The competency curriculum module, when complete, provides all of the requirements for training a learner to perform the tasks set forth in the module. A module may be used independently or related modules may be re-sequenced into modified competency units to provide training for a specific job segment.

Since the curricula are based upon tasks performed by job incumbents in 1971, current analysis of jobs needs to be accomplished using task inventories that have been updated to reflect changes in performed tasks. Subsequent to job analysis, a revision of the curricula should be accomplished to reflect task changes. When the foregoing are accomplished, then faculty and other staff members may be indoctrinated to the competency curricula and to their relationship to the education and training system.

In addition to the primary use for the systematic training of job incumbents, these curricula may be used to plan for new training programs, develop new curricula, and revise existing curricula; develop or modify performance standards; develop or modify proficiency examinations; define billets; credentialize training programs; counsel on careers; select students; and identify and select faculty.

The System

Three sub-systems, as described, comprise the proposed system for Education and Training Programs in the Navy Medical Department. This exploratory and advanced developmental research has established an overall methodology for improved education and training incorporating every possible means of providing bases for demonstrating feasibility and cost effectiveness. There remains only job analysis sub-system up-dating, instructional sub-system completion, and full system test and evaluation.

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Identity and acknowledgement of the project Advisory Group during the project's final year is recorded in the Final Report.

Lastly, the project could not have been commenced nor carried out without the vision, guidance and outstanding direction of Ouida C. Upchurch, Capt., NC, USN, Project Manager.

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COMPETENCY UNIT I: PHYSICAL AGENTS

This unit includes the following modules:

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Unit I: Physical Agents

MODULE 1: AREA PREPARATION

TASKS

a. Prepare area for treatment

b. Set up equipment

c. Collect essentials required for treatment

PERFORMANCE OBJECTIVE

(Stimulus) When assigned by physical therapist

(Behavior) The PTA will prepare area for treatment, set

up equipment and collect essentials necessary

for treatment

(Conditions) Wit nout supervision; using equipment and materials

required for treatment, e.g., shortwave diathermy

machine, laboratory timer, plinth examination

table, pillows, linens, towels

(Criteria) All materials are gathered and placed appropriately

to facilitate patient transfer and preparation of patient for treatment; machines are plugged in

(Consequence) Area is prepared for patient treatment

(Next Action) Transport patient to area

KNOWLEDGES AND SKILLS

Types of PT modality equipment and materials, e.g., shortwave diathermy machine, laboratory timer, plinth examination table, pillows, linens, towels

Patient's disability

Equipment safety precautions

Unit I: Physical Agents

MODULE 2: PATIENT TRANSFER

TASKS

a. Transfer patient

PERFORMANCE OBJECTIVE

(Stimulus) When assigned by physical therapist

(Behavior) The PTA will transfer the patient from wheelchair

or cart to treatment table, chair, whirlpool, or

other specified location

(Conditions) Without supervision; using appropriate equipment

when necessary, e.g., Hoyer lift

(Criteria) Utilizing sound principles of body mechanics,

safety procedures and precautions, transfer

procedures and knowledge of patient's disability

(Consequence) Patient transferred for treatment

(Next Action) Prepare patient for treatment

KNOWLEDGES AND SKILLS

Patient's disability
Body mechanics for self and patient
Types of transfers
Transfer techniques
Use and operation of transfer equipment, e.g.,
Hoyer lift
Safety precautions for PTA and patient

Unit I: Physical Agents

MODULE 3: PATIENT PREPARATION

TASKS

a. Prepare patient for treatmentb. Position patient for treatment

c. Explain treatment and its effects to patient

PERFORMANCE OBJECTIVE

(Stimulus) When assigned by the physical therapist

(Behavior) The PTA will prepare and position the patient for

treatment, explaining the treatment and its

effects to him

(Conditions) Without supervision

(Criteria) PTA prepares and positions patient appropriately

for treatment using effective and appropriate

communication techniques to instruct patient

(Consequence) Patient prepared for treatment

(Next Action) Implement patient treatment

KNOWLEDGES AND SKILLS

Draping and positioning procedures Patient's disability/limitation Effective communication techniques Safety precautions for patient PHYSICAL THERAPY ASSISTANT (PTA)

Unit I: Physical Agents

MODULE 4: HYDROTHERAPY

TASKS

- Modify hydrotherapy treatment according to a. patient's tolerance
- Treat patient in whirlpool b.
- Give moist air Baker treatment C.
- Give contrast bath d.
- Administer water additives e.
- Disinfect hydrotherapy equipment f.

PERFORMANCE OBJECTIVE

Upon instructions from physical therapist (Stimulus) The PTA will prepare/give patient hydrotherapy (Behavior) treatment, assist the physical therapist, when requested, with exercise program for patient in Hubbard's tank, clean and disinfect all hydrotherapy equipment after use and return to

designated area Without direct supervision; using whirlpool, (Conditions) water plinth/stretcher, moist air Baker and

contrast bath

Treatment performed in accordance with patient's (Criteria) tolerance and standard accepted temperature levels; demonstrating empathy and awareness of patient's feeling of dependence

Improvement in patient's physical condition (Consequence)

Record patient's objective and subjective response (Next Action) to treatment

KNOWLEDGES AND SKILLS

Physiological and psychological effects of heat and cold

Patient's disability/limitations

Effects of hydrotherapy on patient's condition

Anatomy/physiology

Signs of adverse reaction, e.g., rash, chilling

Safety precautions

Effects of buoyancy during treatment in water Indications/contraindications for specified

treatment

Psychology Emergency first aid

Treatment techniques and dosage

Use of water additives

Function, operation and maintenance of hydrotherapy equipment, e.g., moist air Baker, water plinth/

stretcher, whirlpool, contrast bath

Transfer, positioning and appropriate draping of patient

Techniques for changing dressings

Unit I: Physical Agents

MODULE 5: THERAPEUTIC POOL

TASKS

- a. Check therapeutic pool air and water temperatures
- b. Adjust chlorination for pH of pool water
- c. Instruct patient in safety procedures
- d. Treat patient in therapeutic pool
- e. Drain and clean therapeutic pool
- f. Inspect therapeutic pool filtering system
- g. Treat patient using walking tank

PERFORMANCE OBJECTIVE

(Stimulus) Upon being assigned to the therapeutic pool/

walking tank

(Behavior) The PTA will maintain the environment, equipment

and water, explain the procedure and related safety precautions to the patient, and administer or supervise the prescribed treatment, assisting

the patient with the exercise or ambulation

program when requested

(Conditions) Without direct supervision

(Consequence) These actions will hasten patient's rehabilitation

(Next Action) Record patient's progress and tolerance

KNOWLEDGES AND SKILLS

Principles and techniques of therapeutic exercise and ambulation

Archimedes' principle

Transfer, positioning and draping techniques

Treatment objectives and progression Psychological apprehensions of patients

Psychological apprehensions of patients Maintenance of therapeutic pool, environment,

water and equipment

Indications and contraindications for treatment

in therapeutic pool/walking tank Safety precautions and procedures

Function and use of equipment

Dosage

Unit I: Physical Agents

MODULE 6: CRYOTHERAPY

TASKS a. Perform surface sensitivity test

b. Give ice massage

Give ice pack treatment

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for cryotherapy and following administration of a sensitivity test by the physical therapist

(Behavior) The PTA will administer the specified method(s) of cryotherapy, e.g., ice pack, ice towel, ice massage, ice bath

(Conditions) Without direct supervision; using cryotherapy equipment, e.g., ice pack machine, ice collars/pack

(Consequence) This action will constitute the patient's treatment and aid in relief of pain and restoration of functional use of the part treated

(Next Action) Observe, report and record patient's objective and subjective response to the procedure

KNOWLEDGES AND SKILLS

Physiological and psychological effects of cryotherapy
Indications and contraindications for cryotherapy
Objectives of cryotherapy
Appropriate treatment dosages
Recognition of patient's tolerance to cryotherapy
Safety precautions for cryotherapy
Purpose of sensitivity testing
Cryotherapy vs. use of heat
Use and maintenance of cryotherapy equipment,
 e.g., ice pack machine, ice collars/pack
Cryotherapy principles and techniques, e.g., ice
 pack, ice towel, ice massage, ice bath
Recognition of listamine reaction

Unit I: Physical Agents

MODULE 7: INTERMITTENT CERVICAL AND LUMBAR TRACTION

TASKS

(Criteria)

a. Administer intermittent cervical traction

b. Administer intermittent lumbar traction

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for intermittent traction (Behavior) The PTA will administer intermittent cervical and/or lumbar traction

(Conditions) Without direct supervision; using traction equipment, e.g., intermittent traction machine,

cervical traction halter, lumbar traction belt Dosage adjusted according to patient's response within limits indicated by physical therapist

or referral instructions

(Consequence) This action will constitute patient's treatment

and aid patient's improvement

(Next Action) Record dosage administered and the patient's subjective and objective response to treatment

KNOWLEDGES AND SKILLS

Mechanical effects of traction
Constant vs. intermittent traction
Indications and contraindications for intermittent
traction
Recognition of adverse reactions
Progression of treatment
Patient positioning techniques
Safety factors
Preparation of patient
Use and maintenance of traction equipment, e.g.,
intermittent traction machine, cervical
traction halter, lumbar traction belt
Techniques for adjusting dosage

Unit I: Physical Agents

MODULE 8: INTERMITTENT COMPRESSION

TASKS

a. Measure extremity girth

b. Give intermittent compression treatment

PERFORMANCE OBJECTIVE

(Stimulus)
(Behavior)

Upon receiving a patient for intermittent compression
The PTA will set up equipment and administer
intermittent compression to the extremities,
measuring extremity girth before and after
treatment

(Conditions) Without direct supervision; using intermittent compression equipment, e.g., intermittent compression unit and attachments

(Criteria) Treatment administered according to physician's/
therapist's specifications for pressure and time
and to patient's subjective response

(Consequence) This action will aid in reducing edema

(Next Action) Record measurements and patient's subjective response to treatment

KNOWLEDGES AND SKILLS

Positioning of patient for intermittent compression Physiological and mechanical effects of intermittent compression

Function, use and maintenance of intermittent compression equipment, e.g., intermittent compression unit and attachments

Indications and contraindications for intermittent compression

Intermittent compression principles and techniques Techniques of extremity girth measurement Application of various sleeves Generally accepted pressure and time dosages

Hygienic and safety factors

Unit I: Physical Agents

MODULE 9: SUPERFICIAL HEAT TREATMENT

TASKS a. Give hot moist pack treatment

b. Give infrared treatment

c. Give paraffin bath treatment

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for superficial heat

treatment

(Behavior) The PTA will administer the appropriate

treatment, e.g., hot moist pack, infrared

or paraffin bath treatment

(Conditions) Without direct supervision; using superficial

heat treatment equipment, e.g., hot moist pack

machine, hot moist packs, goggles, infrared lamp,

paraffin bath equipment

(Criteria) According to therapist's instructions and observing

proper application techniques, safety precautions,

and draping and positioning techniques

(Next Action) Record patient's response to treatment

KNOWLEDGES AND SKILLS

Anatomy and physiology
Physiological effects of heat
Indications and contraindications
Physics related to heat and light
Techniques for application of each modality
Safety precautions
Recognition of adverse reactions to treatment
Standard temperature range
Use, function and maintenance of superficial heat
treatment equipment, e.g., hot moist pack
machine, hot moist packs, goggles, infrared
lamp, paraffin bath equipment

Computation and application of inverse square law

Unit I: Physical Agents

MODULE 10: DEEP HEAT TREATMENT

TASKS

- a. Instruct patient in normal and abnormal responses during treatment
- b. Give microwave diathermy treatment
- c. Give constant/pulsating ultrasound treatment
- d. Give combination ultrasound and electrical stimulation
- e. Give shortwave diathermy treatment

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for deep heat treatment
(Behavior) The PTA will question the patient for contraindications, instruct patient in the procedure and administer the prescribed deep heat treatment

(Conditions) Without direct supervision; using related equipment, e.g., microwave diathermy apparatus, shortwave diathermy apparatus, ultrasound machine

(Criteria) Performed according to prescription, observing all safety factors

(Consequence) This treatment will aid in relieving pain (Next Action) Record patient's progress and tolerance to the procedure

KNOWLEDGES AND SKILLS

Anatomy of the neuromusculoskeletal and circulatory systems

Physiological effects of shortwave, microwave and ultrasound

Principles and techniques of deep heat treatment

Safety precautions and procedures

Indications and contraindications for deep heat treatment

Generally accepted dosage and duration of treatment

Equipment usage, function and maintenance, e.g.,

Equipment usage, function and maintenance, e.g., microwave diathermy apparatus, ultrasound machine, shortwave diathermy apparatus
Instructional/communication skills

Unit I: Physical Agents

MODULE 11: MASSAGE

TASKS

a. Perform facial massage

b. Perform extremity massage

c. Perform trunk massage

d. Perform cervical massage

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for massage
(Behavior) The PTA will give the indicated massage
(Conditions) Without supervision; using approved media, e.g., talc powder, oil or lotion for face, extremities or trunk

(Criteria) According to prescription, using standard accepted strokes, e.g., effleurage, petrissage, friction, tapotement

(Consequence) The PTA gives the massage to achieve a sedative effect, to stimulate/increase circulation or to relieve muscle spasm

(Next Action) Record treatment

KNOWLEDGES AND SKILLS

Anatomy of musculoskeletal, circulatory and autonomic nervous systems

Physiological and psychological effects of massage

Proper preparation, positioning and draping of patient

Patient's history--known allergies to lotion or powder

Indications and contraindications

Observation and evaluation of patient's condition before, during and after treatment

Standard massage techniques/strokes, e.g., effleurage, petrissage, friction, tapotement

Types of massage

Unit I: Physical Agents

MODULE 12: ELECTRICAL STIMULATION

TASKS

a. Perform electrical stimulation, faradic currentb. Perform electrical stimulation, galvanic current

PERFORMANCE OBJECTIVE

(Stimulus) When instructed by the physical therapist

(Behavior) The PTA will give electrical stimulation treatment to an injured muscle, nerve or group of muscles using the specified current, i.e., faradic or

galvanic

(Conditions) With direct supervision; using appropriate equipment,

e.g., galvanic, faradic or sinusoidal generator, medcolator, pocket stimulator, chronaxie constant

current stimulator

(Next Action) Record treatment given and patient's response to it

KNOWLEDGES AND SKILLS

Neuromusculoskeletal anatomy
Physiological effects of faradic and galvanic current stimulation
Communication techniques
Differences between faradic and galvanic currents
Types of equipment, their therapeutic uses and operation, e.g., galvanic/faradic/sinusoidal generators, medcolator, pocket stimulator, chronaxie constant current stimulator for treatment Safety precautions
Low frequency current

Recognition of adverse effects of treatment

Unit I: Physical Agents

MODULE 13: ULTRAVIOLET TREATMENT

TASKS

- a. Explain procedures and safety precautions to patient
- b. Drape and position patient according to safety precautions
- c. Determine minimal erythemal dosage (MED)
- d. Give ultraviolet treatment
- e. Maintain ultraviolet equipment

PERFORMANCE OBJECTIVE

(Stimulus) When directed by the physical therapist
(Behavior) The PTA will establish an MED for the patient and administer ultraviolet treatment to the specified body part

(Conditions) With supervision; using appropriate ultraviolet equipment, e.g., stationary, spot, and protective equipment, e.g., goggles

(Criteria) Observing appropriate safety precautions; administering the prescribed dosage

(Consequence) The results of this treatment will range from mild erythema to desquamation, according to directions

(Next Action) Observe and report patient's objective and subjective response to treatment; report adverse reaction immediately to therapist

KNOWLEDGES AND SKILLS

Draping and positioning techniques to expose only the body part to be treated while protecting parts not being treated

Procedures to establish an MED

Operation and maintenance of ultraviolet equipment, e.g., stationary ultraviolet equipment, spot ultraviolet equipment

Hazards of ultraviolet treatment and safety procedures to protect PTA and patient

Use of safety equipment, e.g., goggles, protective

coverings

Unit I: Physical Agents

MODULE 14: DRESSING WOUNDS

TASKS

a. Dress wound

b. Apply topical ointments

c. Clean and maintain dressing instruments

PERFORMANCE OBJECTIVE

(Stimulus) When directed by the physical therapist to dress

a wound

(Behavior) The PTA will set up and maintain a sterile field,

apply topical medications, when necessary, and select

and apply appropriate dressings

(Conditions) Without direct supervision; using appropriate

materials and instruments

(Criteria) Dressing applied properly to allow free circulation,

protect the wound and, when possible and desirable,

allow freedom of motion to the bandaged part

KNOWLEDGES AND SKILLS

Positioning of body parts to be bandaged Selection of appropriate dressing materials

Sterile technique

Bandaging procedures to allow freedom of motion

Bandaging procedures to allow freedom of

circulation

Bandaging procedures to inhibit motion of part

Topical ointments and procedures for their application

Use and maintenance of dressing instruments

Bandaging to reduce edema

COMPETENCY UNIT II: THERAPEUTIC EXERCISE

This unit includes the following modules:

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1	Patient Preparation for Treatment	17
2	Baseline Measurements	18
3	Range of Motion Exercises	19
4	Strengthening Exercises	20
5	Respiratory Exercises	21
6	Special Exercise Programs	22
7	Muscle Re-education	23
8	Posture Training	24
9	Mat Evercises	25

Unit II: Therapeutic Exercise

MODULE 1: PATIENT PREPARATION FOR TREATMENT

TASKS

- a. Set up equipment/supplies for exercise/programs
- b. Assess patient's tolerance of exercise or activity
- c. Observe for contractures
- d. Modify equipment according to patient's disability
- e. Position/hold limbs during treatment

PERFORMANCE OBJECTIVE

(Stimulus) (Behavior)

Upon receiving a patient for therapeutic exercise The PTA will select and set up the equipment and supplies needed, assess the patient's tolerance and limitations, modify the equipment according to the patient's disability, and make suggestions regarding the patient's exercise program

(Conditions)
(Criteria)

With direct supervision

(Criteria) Modification of care according to patient's responses (Consequence) These actions will ensure maximum therapeutic

effectiveness of the exercise program

KNOWLEDGES AND SKILLS

Equipment and supplies required for various exercises
Physiological effects of exercise
Standard tolerance levels for a patient with a specific disease or disability
Joint and muscle anatomy
Kinesiology
Equipment and care modification
Exercise program progression
Appropriate patient positioning
Body mechanics
Recognition of patient's tolerance and response to treatment

Unit II: Therapeutic Exercise

MODULE 2: BASELINE MEASUREMENTS

TASKS

a. Measure muscle girth

b. Assist with measurement of joint motion

c. Measure hand grip and pinch strength

d. Record baseline measurements

PERFORMANCE OBJECTIVE

(Stimulus) When requested to assist a physical therapist with baseline measurements

(Behavior) The PTA will accurately measure joints and muscles,

determine hand strengths and record results

(Conditions) With supervision and assistance; using appropriate

instruments, e.g., goniometer, dynamometer,

and recording forms

(Criteria) Accurate manipulation of instruments and accurate

reading and recording of results

(Consequence) This information will allow objective reporting

of the patient's condition and will provide a basis for comparison when future measurements are taken

KNOWLEDGES AND SKILLS

Procedures to measure muscle girth Procedures to measure joint motion

Procedures to measure hand grip and pinch strength

Appropriate recording forms

Techniques for assisting with placement, use and

reading of goniometer Types of goniometers

Recording procedures

Function and use of dynamometer

Unit II: Therapeutic Exercise

MODULE 3: RANGE OF MOTION EXERCISES

TASKS

a. Give passive range of motion exercises

b. Assist patient in performing active-assistive range of motion exercises

c. Instruct patient in active range of motion exercises

d. Instruct patient in self-stretching activities

e. Modify program according to patient's response

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for range of motion exercises

(Behavior) The PTA will assist the physical therapist in determining the type of range of motion exercises to be given and will perform passive ROM, assist patient with active-assistive ROM or instruct patient in active ROM and/or self-stretching activities, as indicated

(Conditions) With direct supervision; using appropriate equipment for active-assistive and active ROM, e.g., bicycle exerciser, finger ladder, shoulder wheel, rowing

machine, wand, reciprocal pulley
(Consequence) These actions will constitute the patient's treatment and will maintain or increase joint range of motion

KNOWLEDGES AND SKILLS

Joint anatomy including normal range of motion Safety precautions Effects of gravity on patient positioning Planes and axes of the body Effects of and how to release spasticity by passive station Physiological effects of exercise, e.g., cardiorespiratory response Dangers of contracture Physiology of contracture Adaptation/modification of program to patient's needs/abilities Use of equipment for active-assistive and active ROM, e.g., bicycle exerciser, finger ladder, shoulder wheel, rowing machine, wand, reciprocal pulley Contraindications and indications of different pathologies Communication skills

Diagonal pattern range of motion

Unit II: Therapeutic Exercise

MODULE 4: STRENGTHENING EXERCISES

TASKS

- a. Instruct patient in active-assistive exercises
- b. Instruct patient in active exercises
- c. Instruct patient in active-resistive exercises
- d. Instruct patient in isometric exercises
- e. Instruct patient in use of exercise equipment including isokinetic exerciser
- f. Modify program according to patient's response

PERFORMANCE OBJECTIVE

(Stimulus)
(Behavior)

When instructed by the physical therapist
The PTA will aid in determining the muscle
strengthening program to be used, instruct the
patient in the indicated exercises, observe patient's
performance and modify treatment according to
patient's response

(Conditions)

With direction and occasional supervision; using appropriate exercising equipment

(Consequence)

These actions will strengthen the muscles or muscle groups involved

KNOWLEDGES AND SKILLS

Physiology of muscle contraction Adaptation/modification of program to patient's needs/abilities Isometric exercise vs. isotonic exercise vs.

isokinetic exercise

Purposes, principles, and progression of strengthening programs

Techniques to instruct patient in active-assistive, active, active-resistive exercises which involve isotonic, isometric and isokinetic contractions

Function and use of exercise equipment, e.g., wrist roller, weight lifting equipment, spring exerciser, pull-up bars, Elgin steel frame exercise unit, N-K exercise unit, ankle exerciser, quad bridges (stump blocks), isometric table, isometric machine, isokinetic exercisers

Positioning and variations for various muscle groups Kinesiology

PRE, weight loading, brief maximal exercise

Indications and contraindications for strengthening exercises

Normal muscular strength expectations Recognition of signs of fatigue

Unit II: Therapeutic Exercise

MODULE 5: RESPIRATORY EXERCISES

TASKS

- Explain rationale for postural drainage to patient
- b. Position/assist patient for postural drainage
- Give percussion and vibration treatment c.
- Instruct patient in coughing and breathing exercises
- Modify program according to patient's response

PERFORMANCE OBJECTIVE

(Stimulus) (Behavior) Upon receiving a patient for postural drainage The PTA will explain the purpose of the procedure to the patient, position the patient for postural drainage on the tilt table or in bed, instruct him in coughing and breathing exercises and/or give percussion and vibration treatment

(Conditions)

With direction from the physical therapist; using exercising equipment, e.g., tilt table, mechanical pulmonary-assist machinery, suctioning equipment

(Consequence)

These actions will assist the patient to cough

and generate secretions

(Next Action)

Observe, report and record patient's response and

tolerance to the procedure

KNOWLEDGES AND SKILLS

Anatomy, especially internal organs

Pulmonary physiology

Principles, objectives and techniques of pulmonary programs and exercises

Use of gravity, percussion, resistance, range of motion and re-education

Indications and contraindications according to pathologies

Sputum/mucous culture techniques

Psychological factors

Use of equipment, e.g., tilt table, mechanical pulmonary-assist machinery, suctioning equipment

Techniques for positioning patient

Techniques for percussion and vibration procedures Techniques to instruct patient in coughing and deep breathing

Recognition of adverse reactions

Emergency first aid care

Unit II: Therapeutic Exercise

MODULE 6: SPECIAL EXERCISE PROGRAMS

TASKS

- a. Instruct patient in back exercises, e.g., Williams' regime
- Instruct patient in coordination exercises,
 e.g., Frenkel exercise
- c. Instruct patient in vascular exercises, e.g., Buerger-Allen
- d. Instruct patient in pre- and post-thoracostomy exercises
- e. Instruct patient in breathing exercises
- f. Instruct patient in prenatal exercises
- g. Instruct patient in postpartum exercises
- h. Modify program according to patient's response

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for a special exercise

program

(Behavior) The PTA will explain the purpose of the program and

instruct the patient in the appropriate special

exercises

(Conditions) With direction

(Consequence) This action is designed to improve the patient's

condition and insure that the program is performed

accurately without the supervision of the PTA

(Next Action) Record patient's performance and schedu'e patient

for a recheck

KNOWLEDGES AND SKILLS

General principles and purpose of each exercise program

Psychological responses to exercise programs

Physiological effects of exercise

Anatomy of the chest and pelvis

Circulatory physiology

Anatomic and physiologic changes with pregnancy

Techniques of program adaptation to needs and

limitations of individual patient

Indications and contraindications for each

exercise program

Progression of particular programs

Techniques of demonstration and instruction in special treatment programs

Unit II: Therapeutic Exercise

MODULE 7: MUSCLE RE-EDUCATION

TASKS

- a. Re-educate muscle groups weakened by disease or injury to the peripheral nervous system
- b. Perform muscle re-education following tendon/ muscle transplant
- c. Modify patient care according to patient's response

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for re-education of a muscle or muscle groups

(Behavior) The PTA will instruct or assist the patient in muscle re-education actively, manually or with mechanical assistance

(Conditions) With supervision

(Consequence) This action will improve the patient's awareness of the involved part and aid in restoring strength to the part

(Next Action) Record patient response to treatment

KNOWLEDGES AND SKILLS

Neuromusculoskeletal system anatomy
Indications and contraindications for muscle
re-education exercise
Purposes and goals of muscle re-education
Types of nerve lesions
Types of muscle/tendon transplants
Manual and mechanical assistance techniques for
re-education of muscle/muscle groups
Active muscle re-education techniques
Neurophysiology of the peripheral nervous system

Unit II: Therapeutic Exercise

MODULE 8: POSTURE TRAINING

TASKS

a. Instruct patient in posture principles
 b. Instruct patient in general and specific posture exercises

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving a patient for general posture exercises and after evaluation by the physical therapist

(Behavior) The PTA, without direct supervision, will instruct the patient in posture principles and general exercises. With direction and supervision, the PTA will also instruct the patient in specific posture exercises

(Consequence) These actions will constitute the patient's treatment and aid in maintaining or restoring proper posture

(Next Action) Record patient's response to instruction and schedule patient for re-check of exercises

KNOWLEDGES AND SKILLS

Normal posture
Basic postural and vertebral durations
Posture terminology
Posture exercises
Identification and application of various braces,
splints and corsets
Safe body mechanics
Pathologies of the musculoskeletal system
Indications and contraindications for exercise
Techniques for instruction in posture principles,
body mechanics and exercises

Unit II: Therapeutic Exercise

MODULE 9: MAT EXERCISES

TASKS

- a. Instruct patient in various mat activities,
 e.g., rolling, crawling, sitting balance, knee
 walking, mat crutches and group exercises
- b. Modify program according to patient's response

PERFORMANCE OBJECTIVE .

(Stimulus) When instructed by the physical therapist

(Behavior) The PTA will instruct/supervise patient in mat

activities

Gait patterns

(Conditions) With remote supervision by the therapist; using

large mat, mat crutches and triceps blocks

(Consequence) Increased coordination, tolerance, function, etc.

(Next Action) When ready, progress to next step in sequence

KNOWLEDGES AND SKILLS

Anatomy and physiology
Therapeutic mat exercises
Patient's disability/limitations
Instructional techniques
Safety precautions
Pathologies
Developmental sequence of exercise programs

COMPETENCY UNIT III: AMBULATION

This unit includes the following modules:

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1	Tilt Table Procedure	27
2	Application/Removal and Care of Braces	28
3	Patient Preparation for Ambulation Training	29
4	Crutch Training	30
5	Cane and Walker Training	31

Unit III: Ambulation

MODULE 1: TILT TABLE PROCEDURE

TASKS a. Administer tilt table treatment

PERFORMANCE OBJECTIVE

(Stimulus) When necessary prior to ambulation training (Behavior) The PTA will transfer and position patient on tilt table and administer tilt table treatment (Conditions) Without direct supervision; using tilt table, safety equipment (straps, belts, etc.) and vital sign instruments (Criteria) Observing all safety precautions; patient must show stable vital signs to begin gait training Patient will have enough tolerance of upright (Consequence) position to begin ambulation training (Next Action) Begin ambulation training on parallel bars, crutches or walker

KNOWLEDGES AND SKILLS

Physiology of the circulatory system
Emergency procedures for syncope
Patient's condition
Contraindications to treatment
Principles of tilt table procedure
Psychological approach
Techniques to take and interpret vital signs
Techniques to transfer and position patient on
tilt table
Recognition of patient's response to treatments
Function and use of related equipment, e.g., tilt
table, vital sign instruments, safety equipment
(straps, belts, etc.)

Unit III: Ambulation

MODULE 2: APPLICATION/REMOVAL AND CARE OF BRACES

TASKS

a. Apply/remove brace

b. Instruct patient in how to apply/remove brace

c. Maintain/adjust/modify splints and braces

PERFORMANCE OBJECTIVE

(Stimulus) When assigned

(Behavior) The PTA will instruct and supervise patient on how

to apply/remove splint or brace and on maintenance,

adjustment and modification of splints and braces

(Conditions) With remote supervision; using brace or splint,

e.g., keystone splints
(Consequence) Patient able to perform all tasks needed for proper

use of splint or brace

(Next Action) Recheck patient periodically

KNOWLEDGES AND SKILLS

Type of brace or splint being used, e.g., keystone splint/braces

Techniques of application/removal

Patient's disability

Biomechanics of braces/splints

Surface anatomy

Recognition of need for maintenance, adjustment

or modification of brace or splint

Protection of skin and clothing

Recognition of pressure areas or other skin infections

caused by braces or splints

Unit III: Ambulation

MODULE 3: PATIENT PREPARATION FOR AMBULATION TRAINING

TASKS

- a. Wrap paralyzed extremities for venous support
- b. Adjust parallel bars to correct height
- c. Teach patient to balance
- d. Fit crutches
- e. Fit cane
- f. Adjust walker to correct height
- g. Recommend temporary shoe lift
- h. Place safety belt on patient

PERFORMANCE OBJECTIVE

(Stimulus)
(Behavior)

Patient arriving at clinic for ambulation training
The PTA will prepare the patient for ambulation
training, e.g., instruct in balancing activities
on parallel bars, adjust crutches/walker/cane to
proper length, recommend shoe lift when appropriate,
instruct patient in safety precautions for
assisted ambulation

(Conditions) Without direct supervision; using adjustable parallel bars, posture training glass mirror, crutches, cane or walker and safety belt

(Criteria) Patient must have necessary balance and correct fitting of crutches, cane or walker to complete ambulation training

(Next Action) Begin instruction in gait training

KNOWLEDGES AND SKILLS

Techniques for application/removal of upper and lower extremity splints

Operation of locking mechanism on upper and lower extremity splints

Function and use of ambulation equipment, e.g., parallel bars, posture training mirror, crutches, cane and walker

Techniques for adjusting crutches or walker

Patient's injury

Contraindications to ambulation training

Safety precautions in assisted ambulation

Unit III: Ambulation

MODULE 4: CRUTCH TRAINING

TASKS

- a. Teach patient safety precautions
- b. Teach patient three-point crutch gait
- c. Teach patient four-point crutch gait
- d. Teach patient two-point crutch gait
- e. Teach patient swing-to or swing-through gait
- f. Teach patient in body cast to use crutches
- g. Teach patient to use axillary crutches
- h. Teach patient to use Lofstrand crutches
- Teach patient to perform daily activities on crutches

PERFORMANCE OBJECTIVE

(Stimulus) (Behavior)

Upon completion of patient's ambulation preparation The PTA will instruct and supervise patient in use of the prescribed crutch gait and in performing

daily activities on crutches

(Conditions)

Without direct supervision; using axillary or

Lofstrand crutches, safety belt

(Criteria)

Observing proper safety techniques

(Consequence) Patient able to perform crutch gait(s) and daily activities, adhering to all safety precautions

KNOWLEDGES AND SKILLS

Techniques for instruction in all crutch gaits using axillary or Lofstrand crutches
Observational techniques to verify that safety

precautions and appropriate gait patterns are carried out

Biomechanics of normal gait

Techniques for instruction in daily activities using crutches, e.g., in and out of car, up and down stairs and ramps, on and off toilets, in and out of chairs, through doors

Patient's injury and limitations, including body casts

Degree of weight bearing

Unit III: Ambulation

MODULE 5: CANE AND WALKER TRAINING

TASKS

- a. Teach patient use of cane on level and non-level surfaces
- b. Teach patient use of walker with full weight, partial weight or non-weightbearing gait
- c. Teach patient use of cane and walker in standing up and sitting down
- d. Teach patient to use walker on curbs

PERFORMANCE OBJECTIVE

(Stimulus) Upon receiving directions for cane or walker training

(Behavior) The PTA will teach patient how to manage cane/ walker on level and non-level surfaces and in

daily activities

(Conditions) With remote supervision; using canes, walkers,

safety belt

(Consequence) Patient able to manage cane/walker safely and to

perform daily activities independently

KNOWLEDGES AND SKILLS

Techniques of instructing patient in use of cane/walker on level surfaces and non-level surfaces, e.g., ramps, stairs, curbs, and in standing up and sitting down Safety precautions for walkers and canes Techniques of instructing patient in walker gaits with varying degrees of weightbearing

COMPETENCY UNIT IV: AMPUTEE REHABILITATION

This unit includes the following modules:

Number	<u>Title</u>									
1	Preprosthetic Care		33							
2	Stump Dynamics		34							
3	Care of Prosthesis		35							
4	Prosthetic Training I		36							
5	Prosthetic Training II		37							

Unit IV: Amputee Rehabilitation

MODULE 1: PREPROSTHETIC CARE

TASKS

a. Wrap stump for shape/shrinkage

b. Instruct patient in body and stump positioning

c. Teach patient to wrap stump

d. Teach stump hygiene

e. Teach patient to toughen and mature stump, e.g., tapotement

PERFORMANCE OBJECTIVE

(Stimulus)
(Behavior)

When instructed by the physical therapist
The PTA will wrap the stump for shaping and
shrinking and instruct the patient in stump wrapping.
He will also teach the patient body and stump
positioning to prevent contractures, good stump
hygiene and how to toughen and mature the stump
by tapping or slapping

(Conditions) (Next Action) Without direct supervision

Fit prosthesis

KNOWLEDGES AND SKILLS

Psychological impact of amputation
Psychological approach to amputees
Levels of amputations, surgical aspects
Physiology of circulatory, muscular and nervous
systems
Anatomy of muscles, joints and surface
Tmmediate postop fitting of an amputee

Anatomy of muscles, joints and surface Immediate postop fitting of an amputee Limitations of range of motion, dangers of contracture

Composition of amputee rehabilitation team

Techniques to reassure patient

Principles and techniques of stump wrapping, toughening and conditioning

Instructional techniques

PHYSICAL THERAPY ASSISTANT (PTA) Competency:

Unit IV: Amputee Rehabilitation

MODULE 2: STUMP DYNAMICS

TASKS

Instruct and supervise patient in stump dynamics to strengthen muscle groups

b. Instruct and supervise patient in stump dynamics to maintain/increase range of motion

PERFORMANCE OBJECTIVE

When instructed by the physical therapist (Stimulus)

The PTA will instruct and supervise a patient in (Behavior) stump dynamics to maintain/increase range of motion

and to strengthen various muscle groups

Without direct supervision (Conditions)

(Criteria) According to principles of therapeutic exercise Patient with full range of motion and normal (Consequence)

strength, able to fully utilize prosthesis

(Next Action) Instruct patient in use and care of prosthesis

KNOWLEDGES AND SKILLS

Goniometry

Physiological effects of exercise

Joint anatomy

Purposes and principles of exercise

Patient's psychological response to exercises

Sequence of exercise and progress of programs

through various types of exercise

Levers and consequences of change of length of levers

New kinesthetic sense and afferent input

Balance problems for amputee levels

Indications and contraindications for strengthening muscle groups

Surgical aspects and construction of biceps

cineplasty

Techniques to instruct patient in exercise procedures

and strengthening routines

Application of manual/equipment methods of stretching Techniques to support limbs and perform passive and

active-assistive range of motion exercises

Techniques to measure excursion of biceps cineplasty

Unit IV: Amputee Rehabilitation

MODULE 3: CARE OF PROSTHESIS

TASKS

a. Instruct patient in basic components of prosthesis

b. Instruct patient in care of prosthesis

PERFORMANCE OBJECTIVE

(Stimulus) When a patient is ready for prosthetic training

and upon receiving a prosthesis

(Behavior) The PTA will instruct the patient in the basic

components of the prosthesis and how to care for it. In the case of a lower extremity amputation, the PTA will also instruct patient in use of the

pylon

(Conditions) Without direct supervision

(Consequence) A patient familiar with and able to care for his

prosthesis, ensuring better acceptance of prosthesis

by the patient

(Next Action) Train the patient to put on and remove prosthesis

KNOWLEDGES AND SKILLS

Normal gait kinesiology

Principles and techniques of pylon use

Basic components of prostheses including harnessing

and various supports

Construction and fabrication of various prostheses

General care and maintenance of prostheses

Procedures to check for proper fit of prosthesis

Procedures to check for proper alignment of

prosthesis

Instructional techniques

Recognition of cause of gait deviations, e.g., fit, alignment, lack of amputee proficiency

Unit IV: Amputee Rehabilitation

MODULE 4: PROSTHETIC TRAINING I

TASKS

a. Apply/remove prosthetic appliance

. Teach patient how to dress with and over prosthesis

PERFORMANCE OBJECTIVE

(Stimulus)
(Behavior)

After introducing the patient to his prosthesis The PTA will teach the patient how to put on, align and remove the prosthesis to insure proper functioning

(Conditions)

With direct supervision

(Next Action)

Continue training

KNOWLEDGES AND SKILLS

Extremity anatomy

Reliefs and bulges in the socket of prosthesis

Various types of sockets

Prosthetic harnessing, supports and attachments Mechanics of application, removal and alignment

of prosthetic devices

Techniques to instruct patient in dressing with

and over prosthesis

Recognition of proper prosthetic fit for comfort

and safety

Recognition of pressure areas

Unit IV: Amputee Rehabilitation

MODULE 5: PROSTHETIC TRAINING II

TASKS a. Reinforce pro

a. Reinforce prosthetic training initiated by the physical therapist

PERFORMANCE OBJECTIVE

(Stimulus) After the patient learns the principles

of prosthetic application

(Behavior) The PTA will explain the principles and progress

of prosthetic training

(Conditions) With direct supervision

(Consequence) Knowledge of these principles will enable the

patient to better assess his own progress and

achievements

(Next Action) Notify amputee rehabilitation team

KNOWLEDGES AND SKILLS

Gait analysis

Techniques to instruct in sequence of task activities for lower extremity prostheses

Recreational activities and equipment suitable for

the prosthetic wearer

Techniques to instruct in operation of prostheses

Observation of pressure areas on skin

Proper fit for comfort and safety

COMPETENCY UNIT V: REPORTING AND RECORDING

This unit includes the following module:

Number		<u>Title</u>						Page						
1	Reporting and	Recording .	_	_	_	_	_		_	_	_	_		39

Unit V: Reporting and Recording

MODULE 1: REPORTING AND RECORDING

TASKS

- a. Record objective findings re patient treatment and patient's response to treatment on patient's chart
- b. Report findings to supervising therapist at established intervals
- c. Report adverse patient response to supervising therapist immediately

PERFORMANCE OBJECTIVE

(Stimulus) Upon completion of patient treatment

(Behavior) The PTA will record findings, treatment given and patient's subjective and objective response in patient's chart. Periodically the PTA will report

to the supervising therapist

(Criteria) Concisely and objectively, using proper medical

terminology

(Consequence) This will keep the treatment team members informed

of the specific treatment approach being used

and its results

KNOWLEDGES AND SKILLS

Observational techniques
Recognition of relevant observations
Recording and reporting procedures
Appropriate medical terminology
Selection and use of appropriate forms